

CLAIMS LISTING

- 1.(currently amended) A degasser for molten metal comprising:
a microporous plate comprising at least one internal
passageway and an interface tube capable of removing gas
from said internal passageway attached to said microporous
plate in flow communication with said internal passageway.
- 2.(original) The degasser of claim 1 further comprising a
second interface tube in flow communication with a second
internal passageway.
- 3.(original) The degasser of claim 2 wherein said second
internal passageway and said internal passageway form a
cavity.
- 4.(original) The degasser of claim 1 wherein said microporous
plate has a critical metallostatic pressure (H_p) for
penetration by aluminum at a predetermined operating depth
defined by the equation:

$$H_p > 4 \gamma_{is} (\cos \theta) / g \rho \phi$$

wherein:

γ_{is} is interfacial surface energy between said microporous
plate and said metal,

θ is contact wetting angle of molten metal on said microporous plate,
 g is Newton's constant,
 ρ is the liquid metal density and
 ϕ is the pore opening size of said microporous plate.

5. (cancelled)

6. (currently amended) The degasser of claim 1 wherein said passageway comprises passages ~~have~~ with an equivalent diameter of at least about 500 microns to no larger than about 50 mm.

7. (currently amended) A degasser for molten metal comprising:
a microporous plate comprising at least one internal
passageway and an interface tube attached to said
microporous plate in flow communication with said internal
passageway wherein said passageway comprises passages ~~The~~
~~degasser of claim 6~~ wherein said passages have an equivalent diameter of at least about 5 mm to no more than about 7.5 mm.

8. (currently amended) A degasser for molten metal comprising:
a microporous plate comprising at least one internal
passageway and an interface tube attached to said

microporous plate in flow communication with said internal
passageway wherein said microporous plate comprises
passages and ~~The degasser of claim 5~~ wherein said passages
are separated by a distance between about 0.5 to 10 times
an equivalent diameter of said passage.

9.(original) The degasser of claim 1 wherein said microporous
plate is about 3 mm to about 200 mm thick.

10.(original) The degasser of claim 1 further comprising a
containment vessel with said microporous plate contained in
said containment vessel.

11.(original) The degasser of claim 10 further comprising a
filter in said containment vessel.

12.(original) The degasser of claim 1 further comprising a
monitor in flow communication with said interface tube for
monitoring gases flowing therethrough.

13-31.(cancelled)

32.(new) The degasser of claim 1 further comprising a vacuum
pump attached to said interface tube.

33.(new) The degasser of claim 1 further comprising a purge
arrangement attached to said interface tube.

- 34.(new) The degasser of claim 2 further comprising a vacuum pump attached to said second interface tube.
- 35.(new) The degasser of claim 2 further comprising a purge arrangement attached to said second interface tube.
- 36.(new) The degasser of claim 7 further comprising a second interface tube in flow communication with a second internal passageway.
- 37.(new) The degasser of claim 7 wherein said second internal passageway and said internal passageway form a cavity.
- 38.(new) The degasser of claim 7 wherein said microporous plate is about 3 mm to about 200 mm thick.
- 39.(new) The degasser of claim 7 further comprising a containment vessel with said microporous plate contained in said containment vessel.
- 40.(new) The degasser of claim 39 further comprising a filter in said containment vessel.
- 41.(new) The degasser of claim 7 further comprising a monitor in flow communication with said interface tube for monitoring gases flowing therethrough.

- 42.(new) The degasser of claim 8 further comprising a second interface tube in flow communication with a second internal passageway.
- 43.(new) The degasser of claim 8 wherein said second internal passageway and said internal passageway form a cavity.
- 44.(new) The degasser of claim 8 wherein said passages have an equivalent diameter of at least about 500 microns to no larger than about 50 mm.
- 45.(new) The degasser of claim 8 wherein said microporous plate is about 3 mm to about 200 mm thick.
- 46.(new) The degasser of claim 8 further comprising a containment vessel with said microporous plate contained in said containment vessel.
- 47.(new) The degasser of claim 46 further comprising a filter in said containment vessel.
- 48.(new) The degasser of claim 8 further comprising a monitor in flow communication with said interface tube for monitoring gases flowing therethrough.
- 49.(new) The degasser of claim 7 further comprising at least one of a vacuum pump attached or a purge arrangement attached to said interface tube.

50.(new) The degasser of claim 8 further comprising at least one of a vacuum pump attached or a purge arrangement attached to said interface tube.